EPA IN 2002 – Phenol: used 2000 calculation methodology with
RFD = 6E-1, BCF = 1.4, FI = 17.5.

Fed Register 6/10/09 indicated to use
RFD = 0.30 mg/kg-d. For Me use: RFD 0.30, BCF 1.4, FCR 32.4 g/d same as FI
$q_1 = 1.75$

2000 methodology has 2 methods shown below.

(A) using Cancer potency (q_1)

$$HHWQ = \frac{(RFD/q_1) \times 70\,kg \times 1000\,\mu g/mg}{(2\,L/d + (FCR \times BCF)} = \frac{(0.3/1.75) \times 70 \times 1000}{(2 + (0.0324 \times 1.4)} = \frac{11{,}999.99}{2.04536} = 5866$$

$$HHO = \frac{(RFD/q_1) \times 70\,kg \times 1000\,\mu g/mg}{FCR \times BCF} = \frac{(0.3/1.75) \times 70 \times 1000}{0.0324 \times 1.4} = \frac{11{,}999.99}{0.04536} = 264{,}550$$

★ (B) using Reference dose

$$HHWQ = [RFD \times RSC \times (70\,kg / (2\,L/d + (FCR \times BCF))] \times 1000\,\mu g/mg$$
$$0.30 \times (70/(2 + (0.0324 \times 1.4)) \times 1000 = \cancel{10{,}513.6}\ 10{,}267$$

$$HHO = [RFD \times RSC \times (70\,kg / (FCR \times BCF)] \times 1000\,\mu g/mg$$
$$0.30 \times (70/(0.0324 \times 1.4)) \times 1000 = 462{,}962.9$$

RSC = Relative Source Contribution (% subtraction) not specified for phenol, used 1

I calculated using EPA's numbers and Method B more closely represented EPAs revised NWQC. Though, EPA seems to have rounded significantly. So, I'm using the AWQC generated from Formula B.